

## REMARKS

Applicant respectfully requests reconsideration of this application. Claims 5, 13, 16-20, 22 and 23 have been amended and new claim 24 has been added. No new matter has been added. The remarks below in connection with claim rejections refer to the claims as amended herein. Claims 1-24 are presented for examination.

### ***Claim Rejections -- 35 U.S.C. § 112, second paragraph***

Claims 16, 22 and 23 have been rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Applicant has amended claims 16, 22 and 23 to address the reasons for rejection and respectfully submits that the section 112, second paragraph rejections are overcome.

### ***Claim Rejections -- 35 U.S.C. § 102***

Claims 1-4 and 13-21 have been rejected under 35 U.S.C. § 102(b) as being anticipated by "Packet Classification on Multiple Fields," Pankaj Gupta and Nick McKeown, Proc. Sigcomm, Computer Communication Review, vol. 29, no. 4, pp. 147-60, September 1999, Harvard University (hereinafter, "Gupta"). Applicant respectfully submits that claims 1-4 and 13-21 are not anticipated by Gupta.

Claim 1 recites, in part:

- (d) determining which sub-databases to search, said determining further comprising comparing at least some of the packet header to the plurality of Necessary Path Condition Rules

Gupta discusses the problem of packet classification generally (Abstract and Sections 1 and 2), a number of "Previous Work" classification algorithms (Section 4), as well as a recursive-flow classification (RFC) algorithm. The classifiers described as "Previous Work" include sequential rule evaluation, ternary CAM, 'Grid of Tries' (including 'Crossproducting') and concurrent field matching. However, contrary to the assertion in the Office Action<sup>1</sup>, nowhere in the description of such classifiers or elsewhere does Gupta disclose or suggest "determining which sub-databases to search," or that "said determining further compris[es] comparing at least some of the packet header to the plurality of Necessary Path Condition Rules" as recited in claim 1. Because Gupta lacks at least the above-recited limitation, Gupta does not anticipate claim 1, nor

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<sup>1</sup> The Office Action asserts that the above-recited limitation is disclosed in Gupta sections 1, 2, 4, but does not recite or otherwise identify any specific language from Gupta to explain the basis for rejection.

dependent claims 2-4.

Claim 13 recites, in part:

a plurality of Best Matching Rules Sub-Engines to store the plurality of sub-databases and to search the sub-databases indicated by the selection signals for a match to the second subset of bits within the search value

Applicant submits that, for at least the reasons given in reference to claim 1, Gupta does not disclose or suggest the above-recited limitation and thus does not anticipate claim 13, nor dependent claims 14-20.

Claim 21 recites, in part:

means for finding best rule matches among the determined sub-databases for the packet

Applicant submits that, for at least the reasons given in reference to claim 1, Gupta does not disclose or suggest the above-recited limitation and thus does not anticipate claim 21.

Claims 5-10 are rejected under 35 U.S.C. § 102(b) as being anticipated by "Packet Classification using Hierarchical Intelligent Cuttings," Pankaj Gupta and Nick McKeown, Proc. Hot Interconnects VII, August 99, Stanford University (hereinafter, Gupta II). Applicant respectfully submits that claims 5-10 are not anticipated by Gupta II.

Claim 5 recites, in part:

constructing a hierarchical subdivision tree, comprising a single root, a plurality of nodes, and a plurality of leaves, wherein the root, the nodes, and the leaves are interconnected by a plurality of branches, wherein each branch corresponds to a value of a selected bit of the W bits of at least a subset of the plurality of the N classification rules and wherein a separate branch is constructed for each different value of the selected bit, including the values 0, 1 and X, within the subset of the plurality of the N classification rules

Gupta II discloses a packet classification technique in which the rules of a classifier are recursively "cut" (divided) to build a decision tree in which the leaf nodes correspond to boxes of fewer than a threshold number of rules (Gupta II, Section 4). As Gupta II makes clear, however, a

given rule may appear in multiple boxes of rules for a given decision tree (see Gupta II, Fig. 2 showing that application of the “HiCut” algorithm yields a decision tree in which rule R2 appears in multiple boxes). Thus, even assuming *arguendo* that the boxes of rules in Gupta II correspond to sub-databases as recited in claim 5, Gupta II still does not disclose or suggest constructing a separate branch for each different value of a selected bit, including the values 0, 1 and X, as such a construction would avoid placement of a given rule in more than one box. In view of this clear distinction, applicant submits that Gupta II does not anticipate claim 5, nor dependent claims 6-10.

### ***Claim Rejections -- 35 U.S.C. § 103***

Claims 11-12 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Gupta II in view of Huan Liu “Reducing Routing Table Using Ternary-CAM,” Department of Electrical Engineering, Stanford University, CA 94305 (hereinafter “Liu”).

As an initial matter, applicant notes that no publication date or other citation data was provided in the Office Action in connection with Liu, thus preventing applicant from ascertaining whether Liu in fact qualifies as prior-art in the present application. In response to a telephone inquiry on this point, the Examiner initially identified a January 1, 2001 publication date listed on an IEEE website, but later indicated uncertainty regarding the actual publication date in view of mention, in the body of Liu (see Sections 2 and 4), of a March 7, 2001 snapshot of routing table characteristics. Accordingly, applicant submits that, at least until such time as the publication date of Liu is established, Liu may not be relied upon to establish a *prima facie* case of obviousness.

Notwithstanding Liu’s unascertained publication date, applicant notes that Liu does not disclose or suggest the above-recited limitation of claim 5 (incorporated into claims 11 and 12 by dependency) and thus, even if Liu can be shown to constructively qualify as prior-art and even if Gupta II and Liu could be combined in the manner suggested in the Office Action, the combination would still lack one or more limitations of claims 11 and 12 and therefore would not have rendered claims 11 or 12 obvious.

Claims 22 and 23 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Gupta in view of Liu.

Applicant notes that Liu does not disclose or suggest the above-recited limitation of claim 21 (incorporated into claims 22 and 23 by dependency) and thus, even if Liu can be shown to constructively qualify as prior-art and even if Gupta and Liu could be combined in the manner suggested in the Office Action, the combination would still lack one or more limitations of claims

22 and 23 and therefore would not have rendered claims 22 or 23 obvious.

***Conclusion***

Applicant respectfully submits that all pending claims are in condition for allowance. If a telephone interview would be helpful in any way, the examiner is invited to call the undersigned attorney.

If an extension of time is due in connection with this Amendment, applicant hereby petitions for such extension of time.

Applicant hereby authorizes deposit account 501914 to be charged for any fees due in connection herewith, including any extension-of-time fee.

Respectfully submitted,

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Date January 24, 2007

  
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